

Background document for the Workshop

'Assessing current practices and procedures to strengthen AEGIS'



Federal Ministry
of Food
and Agriculture

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1. Introduction

The European Cooperative Programme for Plant Genetic Resources (ECPGR) agreed in 2006 during its 9th Steering Committee meeting in Izmir, Turkey to establish 'A European Genebank Integrated System' (in short AEGIS) as a Programme component with the following objective: 'The European Collection efficiently conserves and provides access to unique germplasm in Europe'. As per the "Strategic Framework for the Implementation of a European Genebank Integrated System (AEGIS). A Policy Guide" (ECPGR 2009), the *ex situ* conservation of germplasm will be carried out according to common, agreed quality standards, wherever the germplasm is physically located, and will be carried out in such a way that it will facilitate close linkages with *in situ* conservation, the use of and research into the conserved germplasm. It is intended to develop AEGIS within the existing legal framework of the International Treaty and, where necessary, to extend its scope according to the spirit and intentions of the Treaty, thereby contributing to its effective implementation.

In order to achieve the establishment and subsequent operation of AEGIS, a number of procedures and tools have been developed in a participatory manner with the ECPGR Working Groups and the Steering Committee, including a strategic framework/policy guide; a Memorandum of Understanding (MoU) with the member countries and associate agreements with collaborating genebanks; the European Collection and the accession selection criteria and procedures; a quality management system (AQUAS), including agreed technical standards, a template for the operational genebank manuals, policy documents on safety duplication and germplasm distribution; collaboration with EURISCO; a dedicated website.

With the MoU entering into force on 23 July 2009 after the signature by 10 countries, AEGIS was formally established. By 2014, 34 countries had signed the AEGIS MoU, but only three countries had contributed a total of ca. 12 000 accessions to the European Collection, showing a very slow progress towards its establishment during the first five years. This problem was addressed by the Secretariat with the attempt to understand the reasons behind such a slow progress. A 'White Paper' was prepared in 2015, albeit with very few requested inputs from the National Coordinators, which identified a mixture of issues, ranging from lack of understanding of the principles and processes; low national priority given to PGRFA conservation due to economic constraints or political instability; lack of proper national coordination facilities; and lack of sufficient perceived benefits and advantages of AEGIS.

During Phase IX (2014-2018) of ECPGR, the Steering Committee reiterated its encouragement to the countries to make all efforts towards the implementation of AEGIS (see recommendations made at 14th SC meeting, June 2016). Furthermore, several ECPGR Grant Scheme activities were dedicated to AEGIS. Efforts were made with the European Commission to position AEGIS as an element of a future European PGRFA strategy, but this revealed to be an approach unlikely to succeed in the short term.

In relative terms, AEGIS made better progress during Phase IX, increasing by four times the number of accessions (47 000 vs. 12 000 at the start of the Phase), which were designated by 21 countries (see Figure 1 below). However, a tentative estimate that around 35% of the 2 million EURISCO accessions could be unique, would indicate a target of 455 000 accessions that should be expected to become part of AEGIS.

Other parameters measuring the progress with AEGIS, after almost 10 years from its entering into force, are:

- The following countries have not joined AEGIS yet: France, Greece, Macedonia FYR, Serbia and Spain;
- Only 21 out of 34 AEGIS member countries have designated accessions to AEGIS;
- Out of 66 Associate Member institutions, only 20 (30%) contributed accessions to AEGIS;
- Only 8 (12%) of the Associate Member Institutions completed an operational genebank manual;
- Crop-specific standards have been completed by 9 (50%) crop Working Groups.

With these numbers in mind, it can be understood that the current status of AEGIS is still unsatisfactory.

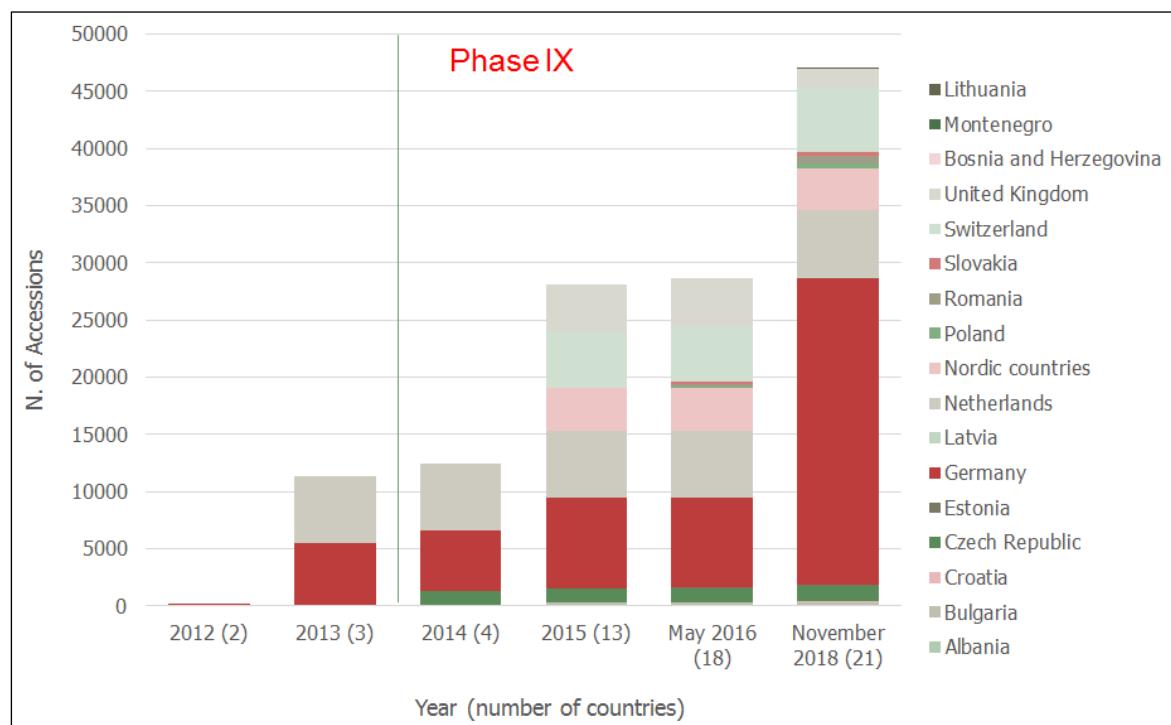


Figure 1. Growth of the number of European Accessions over the years.

“Nordic countries” include the five countries of Denmark, Finland, Iceland, Norway and Sweden.

It is for the above-described reasons of slow growth of AEGIS that this Workshop is being organized, facilitated by an extraordinary contribution of the Government of the Federal Republic of Germany, following the decision by the Steering Committee during its 15th (end-of-phase) meeting and basing the contents of the Workshop on agreed Terms of Reference (ToRs) (ECPGR 2018).

2. Objectives, outcomes and participants

In the aforementioned ToRs the Steering Committee agreed on the following **objectives** for the Workshop:

- a. To provide information at all levels about scope and importance of AEGIS (targeting relevant stakeholders);
- b. To offer examples of positive policy engagement;
- c. To offer examples of mechanisms to identify accessions to be included in the AEGIS European Collection;
- d. To identify reasons why the process is slowed down at different levels and offer solutions;
- e. To facilitate AEGIS activities during Phase X.

The Steering Committee formulated also expected **outcomes** for the Workshop, i.e.

- a. Create sense of ownership in the AEGIS process;
- b. Provide solutions to processes of technical nature;
- c. Provide simple documents showing the benefits.

Furthermore, the Steering Committee provided a reference for the **participation** of the ECPGR and AEGIS community in the Workshop. They suggested a total number of approximately 50 participants, to be selected from AEGIS and non-AEGIS member countries that express a clear interest to advance the AEGIS process in their respective countries and/or that have experiences to report on the implementation of AEGIS. The participants should include Ministerial authorities, National Coordinators, Genebank curators and Working Group Chairs.

3. Preparations for the Workshop

As part of the implementation of the above-mentioned ToRs, the Secretariat contacted the ECPGR National Coordinators with a request to nominate participants from their respective countries for the Workshop and to complete an “Expression of Interest” (EoI), in order to collect viewpoints on experiences related to the AEGIS establishment as well as operation process, or on situations that have prevented such establishment, and thus to provide the foundation for the selection of countries/teams of participants. The answers provided in the EoI would also contribute to the agenda for the workshop.

From the 43 invited countries, 18 responded and completed the EoI template. The answers to the question ‘*Please describe briefly the problem(s) or constraint(s) that you and your colleagues*

have experienced since you initiated the process of becoming an AEGIS member and/or with the implementation of AEGIS were compiled and analysed and provided the basis for the draft agenda of the Workshop. The answers received are summarized and annotated in the following section.

4. Reported problems, constraints and issues

A. Legal aspects

- *A few countries reported difficulties to understand the entire legal framework within which AEGIS is expected to operate. One specific legal issue (MoU is not legally binding) was reported as a constraint.*

B. General implementation of AEGIS

- *A number of fears and concerns have been expressed about AEGIS, i.e. increasing workload and resources, loss of material due to rationalization and guaranteed safety and adequate quality of long-term conserved material.*
- *Also lack of understanding of the AEGIS system at all levels, frequent staff movements in Ministry and the complexity of the system are reported obstacles for the implementation of AEGIS.*

C. Benefits

- *A few replies indicated a lack of experienced or recognized benefits through AEGIS.*

D. European Collection

i. Identification and flagging of AEGIS accessions

- *Different reasons have been reported to explain why the identification and flagging of accessions are slow/not happening. These include the time requirement to follow the procedures, a lack of understanding of the flagging procedures, the absence of rules how to proceed with accessions collected from countries that are not prepared to flag them, what to do with material collected outside Europe and how to handle accessions with a poor health status.*

ii. Miscellaneous aspects

- *Lack of understanding of existing procedures as well as absence of detailed procedures for vegetatively propagated crops is reported by some countries.*

E. AQUAS

i. General aspects

- *Countries express a concern that the quality management requirements of AEGIS are too onerous and a fear that the Associate Members might not be able to respect them, partly due to poor and/or unstable funding situations. This seems to impact on the number of accessions that countries/institutes are able/willing to offer to AEGIS.*

ii. AEGIS standards

- *There is a concern that standards used across European genebanks are very different from the agreed AEGIS standards.*

iii. Routine genebank operations

- *The lack of adequate funding is reported by several countries as a reason why routine genebank operations such as regeneration (especially cross-pollinating species), germination testing, characterization and evaluation as well as safety duplication are problematic.*
- *Lack of adequate funding in several countries seems to be an issue that is independent from the existence of AEGIS and that becomes a major impediment to build a truly decentralized high quality European Collection.*

iv. Safety duplication

- *Replies received indicate that financial constraints are sometimes limiting all aspects related to safety duplication (i.e. multiplication, preparation of material and shipping). It is perhaps not always understood that the possibility to use Svalbard as a primary safety duplication site is just an option and not a rule.*
- *The selection of partner genebanks where to store the safety duplicates is mentioned as a problem.*

v. Germplasm distribution and health issues

- *Capacity constraints to conduct phytosanitary tests are reported to be a limiting factor.*
- *Replies received underline the lack of clear procedures for the distribution of vegetatively propagated materials and lack of agreed phytosanitary procedures for distributing. Lack of funds to regenerate/multiply material is a limiting factor as well. It is realized that the procedures for the conservation and distribution of AEGIS accessions have not sufficiently addressed phytosanitary aspects and that these need to be developed.*

vi. Procedures for handling vegetatively propagated crops in AEGIS

- *The lack of clear and possibly specific procedures for handling vegetatively propagated materials (especially for tree germplasm) within AEGIS has been reported by several countries and this has restricted the flagging of such materials.*

F. Germplasm characterization and evaluation

- *For some countries, the lack of characterization and evaluation (C&E) data has limited the identification and flagging of more AEGIS accessions.*
- *No specific procedures have been developed (yet?) for the characterization and evaluation of AEGIS.*

G. Information management

- *The variable application of taxonomic standards is reported as a constraint for AEGIS (and possibly for all the germplasm conserved in European genebanks).*
- *Some specific questions on the handling of information of 'eliminated' accessions in databases have been reported.*

H. Awareness

- *The low level of awareness of AEGIS in a number of countries and among researchers, plant breeders and genebank curators is being reported as a constraint.*

I. Capacity (building)

- *Lack of infrastructural and personnel capacity in the conservation of genetic resources seems to still exist in some countries.*

J. Collaboration

i. Among countries and Associate members

- *Some countries have reported a lack of information on what is being or should be done on AEGIS in other countries and by all the stakeholders involved. This situation seems also to apply to Associate Members within a country.*

ii. Involvement of national and local level stakeholders

- *One country is reporting the need to anchor AEGIS activities and to agree on the steps needed at the local and national level in order to engage the stakeholders in the AEGIS implementation process.*

iii. Links with users

- *Use-related aspects in AEGIS are still somewhat weak and should be given due attention.*

K. Funding

- *The lack of adequate and/or stable funding of routine genebank activities and the possible cost implications of including accessions in AEGIS are overwhelming concerns expressed by several countries. This has a direct impact on the priority that countries/genebanks can give to AEGIS.*

5. Conclusion and recommendations

Concerns expressed and constraints identified by the participating countries have been the basis for the agenda and thus, the basis for discussion during the Madrid workshop. In this ‘conclusions and recommendations’ section the ECPGR Secretariat has tried to anticipate some of the specific points that will require discussion and action. In some cases, specific interventions are proposed.

- i. A clear perception of the beneficial impact that is expected to derive from a functional AEGIS has not yet fully been acquired. On one hand, benefits can become visible only once the European Collection has reached a more significant size and the monitoring system has become operational. Reaching this threshold involves an initial investment that does not seem to be affordable by many countries. This means that without substantial extra funds, AEGIS will always have difficulties to take off. On the other hand, the expectations of different countries and of different actors within these countries remain rather mixed and not well consolidated regarding the potential benefits of AEGIS. It would be beneficial if the National Coordinators could analyse within their national systems to which extent they collectively recognize (or not) the potential benefits of a conservation system under shared responsibilities in Europe. Without a strong determination and firm collective belief in the AEGIS Initiative, it might be better to downsize the expectations and work on alternative solutions.
- ii. The development of an AEGIS manual, as a kind of ‘instruction manual’ for the implementation of AEGIS could be considered to guide the AEGIS implementing national ‘agency’, as well as the National Coordinators, curators and genebank workers systematically through the various steps and explain/justify them. In the past, a ‘checklist’ for the implementation of AEGIS had been produced, but this was possibly targeted to National Coordinators having already strong familiarity with the AEGIS history and procedures. All unclear aspects and procedures emerging from the workshop could be

treated in detail in the manual. This includes for instance the relationship between AEGIS and EURISCO, flagging and de-flagging procedures and the way EURISCO is dealing with taxonomic problems.

- iii. Vegetatively propagated crops require specific attention owing to their different conservation regime and phytosanitary risks. Specific AEGIS procedures may need to be developed.
- iv. A communication channel among AEGIS members and Associate Member Institutions (across and within countries) seems to be a missing element in the AEGIS system. Level and type of interaction required will need to be defined.
- v. Germplasm health issues have been mentioned. Relevant considerations should become part of the AEGIS strategy for vegetatively propagated crops, since these issues can influence the AEGIS procedures related to conservation, safety duplication and distribution. On the other hand, for seed propagated crops, health issues do not seem to deserve a specific AEGIS treatment, different from ordinary genebank procedures.
- vi. Whereas no specific procedures have been developed for the characterization and evaluation of AEGIS accessions it is assumed that AEGIS accessions will a priori receive a high priority when it gets to the characterization and evaluation activities at the respective genebanks. Thus, the higher quality standard of AEGIS accessions will be complemented by an increased level of C&E data to become available for these accessions and consequently increasing their value further.
- vii. The reporting and monitoring procedures have not been implemented yet. These would be premature since the European Collection is not fully developed and the crop-specific conservation standards have been only partially developed and agreed. At this stage, testing a voluntary genebank mutual peer review scheme, as foreseen in the ECPGR Objectives for Phase X, is probably the correct step to take in order to trigger mutual trust and better cooperation.

6. References

- ECPGR. 2009. A Strategic Framework for the Implementation of a European Genebank Integrated System (AEGIS). A Policy Guide. European Cooperative Programme for Plant Genetic Resources (ECPGR). Bioversity International, Rome, Italy.
- ECPGR. 2018. Annex 4. Proposal to organize an AEGIS workshop (concept note). In: Report of the Fifteenth (End-of-Phase) Steering Committee Meeting, 15-17 May 2018, Thessaloniki, Greece. European Cooperative Programme for Plant Genetic Resources, Rome, Italy.
- ECPGR. 2018. ECPGR Objectives for Phase X (2019-2023) (agreed at the 15th Steering Committee meeting, May 2018).